



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,541	10/18/2006	Kenzo Nakamura	286269US2XPCT	4623
22850	7590	12/22/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER EUSTAQUIO, CAL J	
			ART UNIT 2612	PAPER NUMBER
			NOTIFICATION DATE 12/22/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/568,541	<b>Applicant(s)</b> NAKAMURA ET AL.	
	<b>Examiner</b> CAL EUSTAQUIO	<b>Art Unit</b> 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/19/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### **Claim Status**

1. **Claims 1-12** are presented for examination.

### ***Information Disclosure Statement***

2. The Information Disclosure Statement, submitted on 17 February 2006, has been reviewed unless otherwise noted.

### ***Claim Rejections - 35 USC §102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102(b) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a Foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 2, 4-6, and 10-12** are rejected U.S.C. § 102(b) as being unpatentable over Kline, U.S. 2002/0121963A1.
  - a. **As to claim 1**, Kline discloses the claimed: A relay amplifier, installed at a branch point of a power line in a power line communication (FIG. 3 and [0041-42], for amplifying communication signals (FIG. 7, 610 and 620), said relay amplifier comprising: a plurality of signal couplers which are provided at the power lines at both sides of the branch point (FIG. 5, connection to low voltage power line 113 and power line coupler 200), and which transmit communication signals to the power lines and receive the same therefrom (FIG. 7); and an amplifier that

amplifies communication signals inputted from the plurality of signal couplers (FIG. 7).

- b. **As to claim 2**, Kline discloses the claimed: The relay amplifier according to **claim 1**, wherein the relay amplifier selectively amplifies a frequency band of a voltage waveform attenuating due to impedance of the branch points and the power lines. As previously disclosed in **claim 1** rejection, amplifiers are shown in FIG. 7. [0058] discloses frequency bands above 50-60 Hz are substantially rejected and only data signals operated at higher frequencies are allowed to pass and become processed within the device that contains the amplifiers.
- c. **As to claims 4 and 6**, Kline discloses the claimed: The relay amplifier according to **claim 1**, wherein the plurality of signal couplers are inductive type couplers each comprising a cylindrical ferrite core and a conductor wound around the outer circumferential surface of the ferrite core, and; The relay amplifier according to **claim 1**, wherein at least one of the plurality of signal couplers is an inductive type or a capacitance type. FIG. 6, [0056] and [0064], 602.
- d. **As to claims 5**, Kline discloses the claimed: The relay amplifier according to **claim 1**, wherein the plurality of signal couplers are capacitance type couplers directly connected to the power lines, and are provided with a power source portion for generating a drive voltage of the amplifier upon receiving power from the power lines. FIG. 7 and [0068] discloses capacitors 710 coupled to the

utility voltage lines at 113 and 120. FIG. 6 discloses a power supply 682.

- e. **As to claim 10**, Kline discloses the claimed: A power line communications system including any one of the amplifiers according to **claim 1**. FIG. 7, 610, and 620.
- f. **As to claim 11**, Kline discloses the claimed: A power line communications method, in which a relay amplifier is provided at branch points of power lines in order to amplify communication signals (FIG. 5), said method comprising the steps of: transmitting and receiving communication signals with respect to the power lines via signal couplers each connected to the power lines at both sides of the branch point; and amplifying the communication signals outputted from the signal couplers by using an amplifier. FIG. 2, FIG.6, and [0055-0063] disclose a data communications system that utilizes over-utility-line data communications. FIG. 2 shows a second coupler 200.
- g. **As to claim 12**, Kline discloses the claimed: An induction type signal coupler comprising: a cylindrical ferrite core; and a conductor wound around the outer circumferential surface of the ferrite core. See FIG. 6, [0056], and [0064], 602.

### ***Claim Rejections - 35 USC § 103***

- 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this

Art Unit: 2612

title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
  - a. Determining the scope and contents of the prior art.
  - b. Ascertaining the differences between the prior art and the claims at issue.
  - c. Resolving the level of ordinary skill in the pertinent art.
  - d. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. **Claim 3** is rejected under 35 U.S.C. 103 (a) as being obvious over Kline, U.S. 2002/0121963A1 in view of Cern, U.S. 2002/10171535 A1
  - a. **As to claim 3**, Kline discloses except for the claimed: The relay amplifier according to **claim 1**, wherein the plurality of signal couplers are connected to power lines having a different phase angle of the voltage waveform, among the power lines. Kline, as above, discloses amplifying and transferring data along a single phase line. However, Kline does not disclose transferring and amplifying communications signals over a multi-phase line. In the same art of power line communications, Cern, in at least FIG. 1G and [0031] discloses a power line broadband system that uses modems to communicate between different phase lines. It would have been obvious to one of ordinary skill in the art at the time of

the claimed invention to modify the line communications system disclosed in Kline with the different phase line communications scheme found in Cern to produce a power line communications system that includes the capability of transmitting data signals over differently phased power lines. A user possessing this capability can include different networks over which to communicate since more than one communications line per phase is represented in this modified configuration.

8. **Claims 8 and 9** are rejected under 35 U.S.C. 103 (a) as being obvious over Kline, U.S. 2002/0121963A1 in view of Blamey et al, U.S. 2004/0252853 A1.
- a. **As to claim 8**, Kline discloses except for the claimed: The relay amplifier according to **claim 1**, further comprising: means for detecting an oscillation state of the amplifier; means for displaying the oscillation state of the amplifier; and means for adjusting gain of the amplifier. In the same art of signal processing, Blamey discloses that in order to have oscillations in an amplifier, gain around a loop in an amplifier is greater than 1. Blarney, in paragraphs [0027-0044] methods of detecting oscillations in an amplification circuit. Included are methods to reduce oscillations, including adjusting the gain attenuation, which is found in [0063]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a feedback detection and suppression method, as described in Blarney, into the signal transmission and amplification system found in Kline to produce an amplifier system that include the ability to detect and suppress

undesirable oscillations. Such a system would increase the reliability of signal processing and therefore have better signal transmission quality.

- b. **As to claim 9**, Kline discloses except for the claimed: The relay amplifier according to **claim 1**, further comprising: means for detecting an oscillation state of the amplifier; and means for stopping the oscillations by adjusting gain of the amplifier. In the same art of signal processing, Blamey discloses that in order to have oscillations in an amplifier, gain around a loop in an amplifier is greater than 1. Blarney, in paragraphs [0027-0044] methods of detecting oscillations in an amplification circuit. Included are methods to reduce oscillations, including adjusting the gain attenuation, which is found in [0063]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a feedback detection and suppression method, as described in Blarney, into the signal transmission and amplification system found in Kline to produce an amplifier system that include the ability to detect and suppress undesirable oscillations. Such a system would increase the reliability of signal processing and therefore have better signal transmission quality.
9. **Claim 7** is rejected under 35 U.S.C. 103 (a) as being obvious over Kline, U.S. 2002/0121963A1 in view of Walbeck et al U.S. 2005/006353.
- a. **As to claim 7**, Kline discloses except for the claimed: The relay amplifier according to **claim 1**, wherein the input and output terminals of the amplifier or the signal couplers are provided with a surge noise protection circuit to stop input of surge noise

resulting from inductive lightning. In the same art of power line technology, Walbeck, [0012] discloses a surge suppression noise filter provided to the connections connected to a power line network adaptor. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to provide a surge suppression device, as described in Walbeck into the power line communications system of Kline. Surge suppression devices are well known in the art and such a device has the advantage of cleaning a signal transmission of transients and providing over voltage protection.

### **Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are as follows: U.S. Patent to Harrington et al, US 6163579, entitled "Broadband Modem Transformer Hybrid," which discloses a broadband modem hybrid transformer couples a broadband modem to a plain-old-telephone (POTS) line. The hybrid includes a full bridge having an impedance matching network to reduce the trans-hybrid attenuation of the hybrid.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAL EUSTAQUIO whose telephone number is (571)270-7229. The examiner can normally be reached on 8am-5pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin C. Lee, can be reached at (571) 272-2963. The fax phone number for the organization where this application or proceeding is

Art Unit: 2612

assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-91 99 (IN USA OR CANADA) or 571-272-1000.

/C. E./

Examiner, Art Unit 2612

/BENJAMIN C. LEE/

Supervisory Patent Examiner, Art Unit 2612